



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,966	07/28/2003	Patricia A. Wang	200209420-1	6184
22879	7590	05/13/2005	EXAMINER	
			SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/628,966	WANG ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Callie E. Shosho	1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-46 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-46 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/20/04 &amp; 7/28/03</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

**Information Disclosure Statement**

1. It is noted that Yamashita et al. (U.S. 5,883,157) has been stricken from the IDS filed 12/20/04 as redundant given that the reference is already cited on the IDS filed 7/28/03.

Further, one occurrence of Parazak (U.S. 6,281,267) has been stricken from the IDS filed 7/28/03 as redundant given that the IDS cited this reference twice.

**Claim Rejections - 35 USC § 112**

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 21 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 and claim 44 each recite list of organic acids and “derivatives thereof”. The scope of each of the claims is confusing because it is not clear what is meant by “derivatives” or what types of organic acids are encompassed by this phrase.

**Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak (U.S. 6,281,267) in view of Zhu (U.S. 5,889,083).  
Parazak discloses ink set comprising black ink comprising water, co-solvent, 0.001-10% self-dispersing pigment, 0.1-50% surfactant/amphiphile, and additive to improve various properties of the ink and color ink comprising water, co-solvent, 1-10% multi-valent salt wherein

the cations of the salt include alkaline earth metals, transition metals, and lanthanides, and 1-10% organic acid such as polyacrylic acid, acetic acid, glycolic acid, citric acid, tartaric acid, etc. There is also disclosed method of controlling color bleed comprising formulating the above black ink (col.1, lines 7-8, col.2, lines 47-49, col.6, lines 25-67, col.7, line 55-col.8, line 51, and col.9, lines 9-10).

The difference between Parazak and the present claimed invention is the requirement in the claims of hydrolyzed styrene-maleic anhydride copolymer.

Zhu, which is drawn to ink jet ink, disclose the use of hydrolyzed styrene-maleic anhydride (SMAH) copolymer wherein the ratio of styrene to maleic anhydride is 1:1 and the copolymer possesses weight average molecular weight of 1,500-50,000. The motivation for using such polymer is as a binder in order to fix the colorant of the ink to substrate and to provide abrasion protection (col.4, lines 47-54 and 62-67, col.5, line 63, and col.6, lines 5-9 and 31-39).

In light of the motivation for using hydrolyzed styrene-maleic anhydride copolymer disclosed by Zhu as described above, it therefore would have been obvious to one of ordinary skill in the art to use hydrolyzed styrene-maleic anhydride copolymer as additive in the black ink of Parazak in order to produce ink with good abrasion resistance wherein colorant is fixed to substrate, and thereby arrive at the claimed invention.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamashita et al. (U.S. 5,883,157) disclose ink jet ink comprising salt of styrene-maleic anhydride copolymer, however, there is no disclosure of ink set comprising black containing the styrene-maleic anhydride and color ink as required in all the present claims.

Yanagi et al. (U.S. 5,631,309) disclose ink jet ink comprising hydrolyzed styrene-maleic anhydride, however, the ink comprises dye not pigment as presently claimed and further, there is no disclosure of ink set comprising black ink containing the styrene-maleic anhydride and color ink as required in all the present claims.

O'Neill (U.S. 3,053,779) disclose ink jet ink comprising styrene-maleic anhydride, however, there is no disclosure that the styrene-maleic anhydride is hydrolyzed and further, there is no disclosure of ink set comprising black ink containing the styrene-maleic anhydride and color ink as required in all the present claims.

Higashiyama et al. (U.S. 5,938,829) disclose ink jet ink comprising styrene-maleic anhydride, however, there is no disclosure that the styrene-maleic anhydride is hydrolyzed and further, there is no disclosure of ink set comprising black ink containing the styrene-maleic anhydride and color ink as required in all the present claims.

Fujioka (U.S. 5,637,140) disclose ink jet ink comprising styrene-maleic anhydride, however, there is no disclosure that the styrene-maleic anhydride is hydrolyzed and further, there is no disclosure of ink set comprising black ink containing the styrene-maleic anhydride and color ink as required in all the present claims.

Lee et al. (U.S. 6,740,689) and Kabalnov (U.S. 6,261,350) each disclose ink set comprising yellow, magenta, and cyan inks. There is also disclosed black ink comprising hydrolyzed styrene-maleic anhydride, however, the black ink contains dye not pigment as

required in the present claims. Further, there is no disclosure of ink set comprising the black ink and color inks as presently claimed.

Murakami et al. (U.S. 5,462,592) disclose ink set comprising black ink containing hydrolyzed styrene-maleic anhydride and color ink, however, the black ink contains dye not pigment as required in the present claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Callie E. Shosho  
Primary Examiner  
Art Unit 1714